



Landscape Level Planning for the Dog River-Matawin Forest

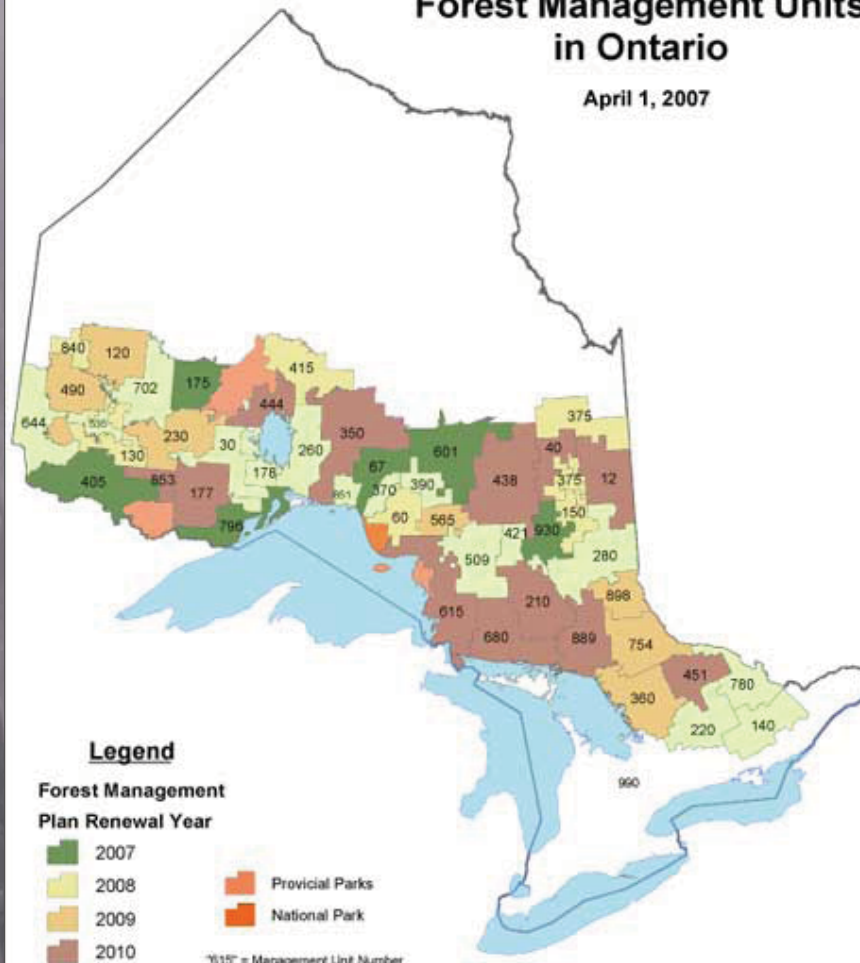
**Practicality vs Policy in the
2009 – 2019
Forest Management Plan**

Landscape Level Planning in Ontario

- There is no mechanism for regular Strategic Level Planning in Ontario
- Forest licensing is contiguous north of the 51st parallel in Northern Ontario
- Parks system and other forms of tenure (mining patents, land use permits, long term leases) are take-aways from the productive forest which is otherwise under license to the forest industry

Forest Management Units in Ontario

April 1, 2007



Landscape Level Planning in Ontario

- Therefore, virtually all planning for such things as landscape pattern, wildlife habitat, watershed protection, protection of old growth forest ... are done within the context of the Forest Management Plan and applied on a management unit by management unit basis

“That’s a lot of baggage.”

Landscape Level Planning in Ontario

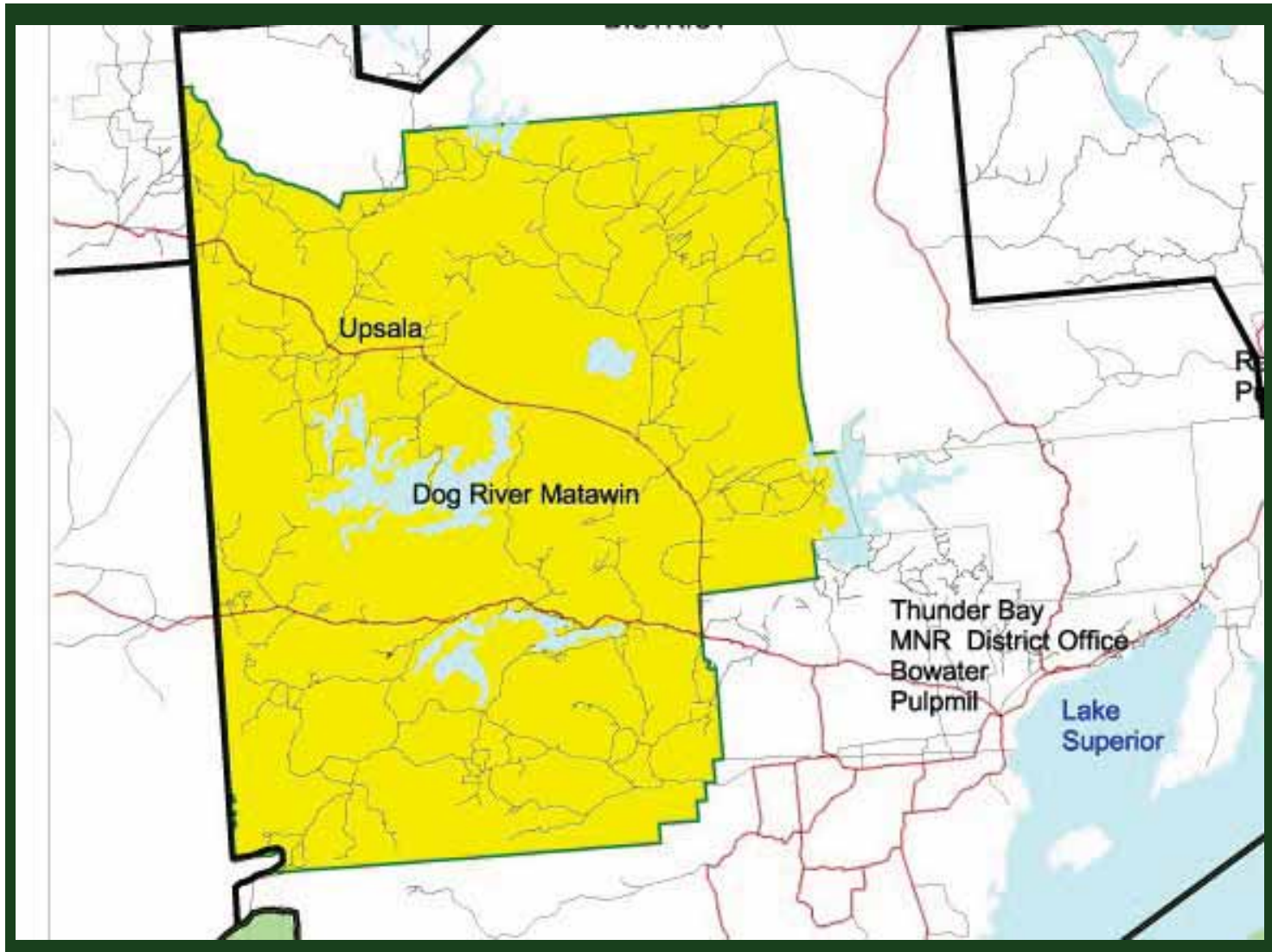
- The MNR describes ecosystem planning as a coarse and fine filter approach
- Conceptually higher level “coarser filter” policies are applied initially and result in things like landscape design
- Finer filter policies are used to refine management to meet the needs of particular species or ecosystem elements

Landscape Level Planning in Ontario

- **Landscape level planning ~ landscape design is the product of four sets of guidelines which are applied in Forest Management Plans in N. Ontario:**
 - **Forest Management Guide for Natural Disturbance Pattern Emulation**
 - **Forest Management Guidelines for the Provision of Marten Habitat**
 - **Forest Management Guidelines for the Conservation of Woodland Caribou**
 - **Timber Management Guidelines for the Provision of Moose Habitat**

The Dog River-Matawin Forest Land base

- Total Area ~ 1,065,946 ha
- Total Crown Land ~ 906,579 ha
- Productive Forest ~ 716,149 ha
- Allowable Harvest Area (2005)
~ 10,282 ha
- Allowable Harvest Area (2009)
~ 8,846 ha



Characteristics of the Dog-Mat as they Relate to Landscape Design

- Long Management History ~ Fully Utilized
- Entering a period of declining wood supply
- Several styles of harvesting evident across the landscape
- Fully accessed; few “untouched” areas

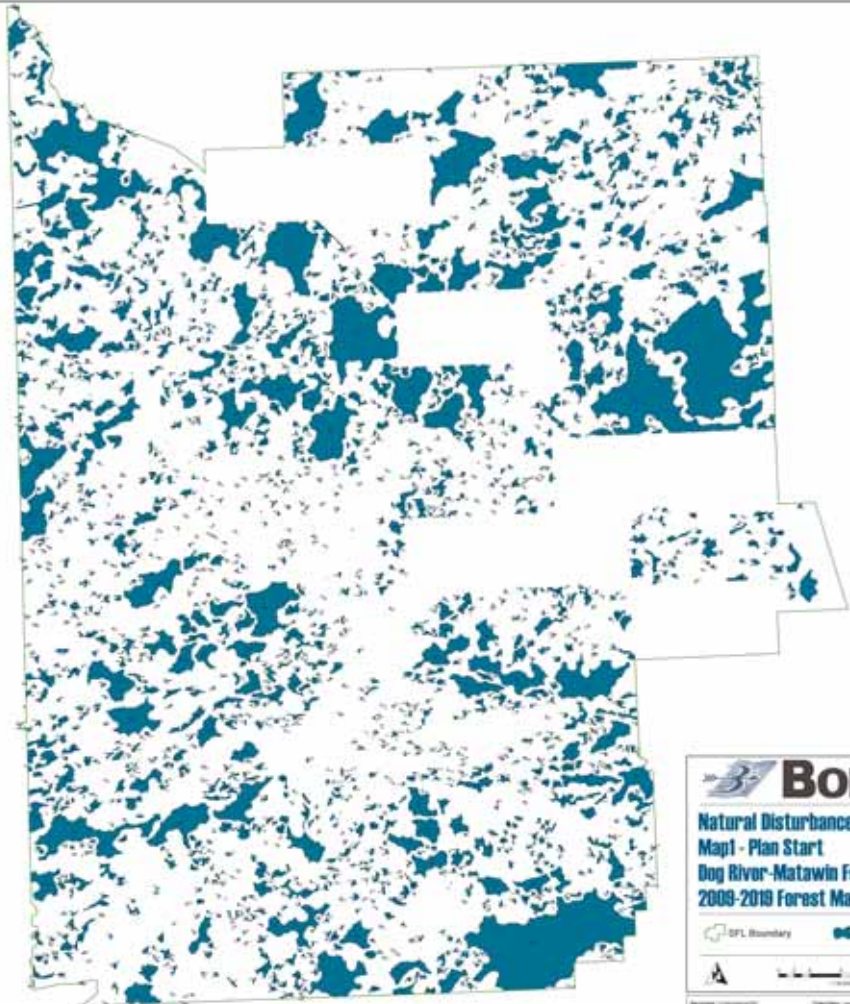
FOREST MANAGEMENT GUIDE FOR NATURAL DISTURBANCE PATTERN EMULATION ~ 2001

“The purpose of this guide is to provide direction for forest management practitioners in the development and implementation of forest management plans such that managed forest landscapes will resemble more closely the landscapes recently created naturally by fire”

FOREST MANAGEMENT GUIDE FOR NATURAL DISTURBANCE PATTERN EMULATION ~ 2001

4 Elements of the NDPEG.

- **Demonstrate movement towards the “natural disturbance template”**
- **Manage planned clearcut sizes (Northern Ontario ~ 80:20 Ratio of smaller, [i.e. < 260 ha], to larger clear cuts**
- **Sliding scale of spatial distribution of disturbances of various sizes**
- **Stand level retention of timber as insular area, peninsular areas & snag trees**



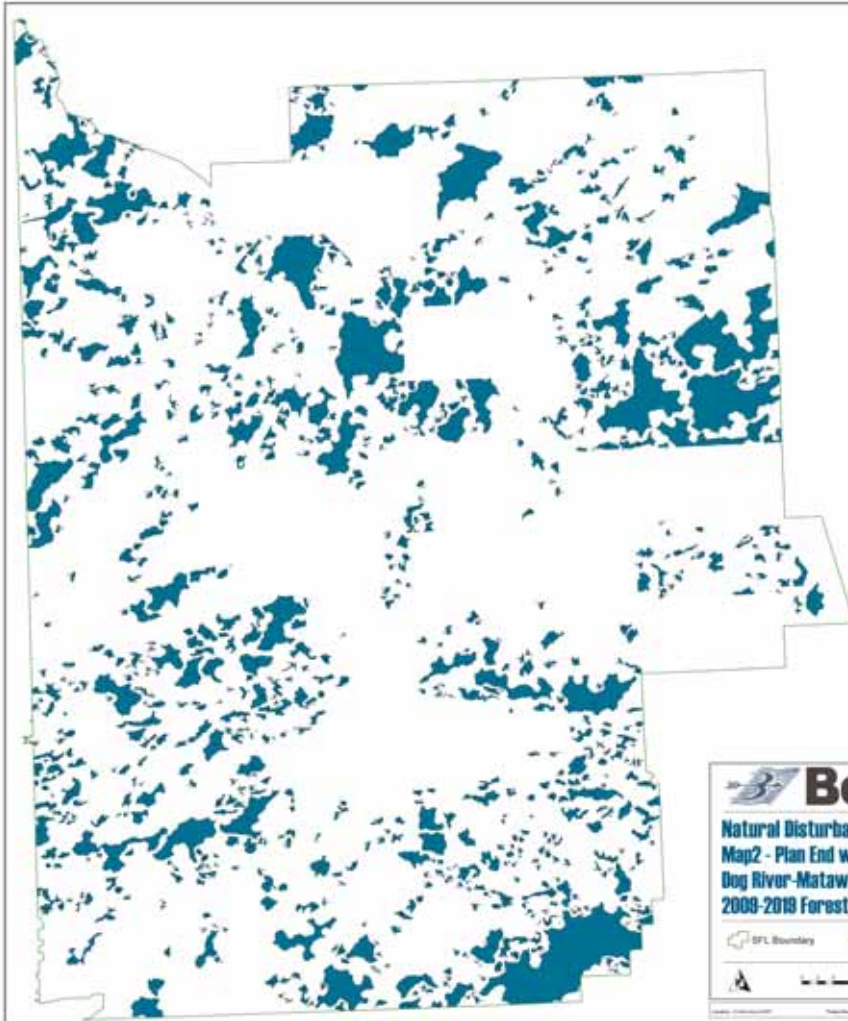

BOWATER
 Natural Disturbance Pattern Emulation
 Map1 - Plan Start
 Dog River-Matawin Forest
 2008-2018 Forest Management Plan

 DFL Boundary
  Forest Disturbance Perimeters





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 Website: www.bowater.com



 **BOWATER**

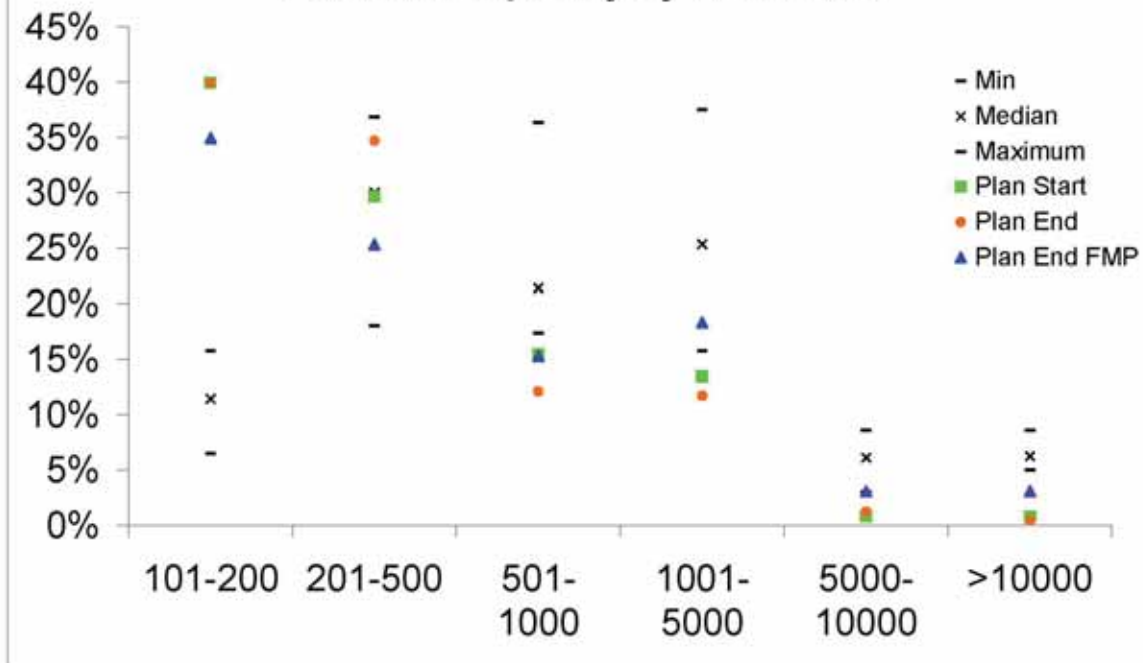
**Natural Disturbance Pattern Emulation
Map2 - Plan End with No Operations
Dog River-Matawin Forest
2008-2018 Forest Management Plan**

 FDP Boundary  Forest Disturbance Perimeters

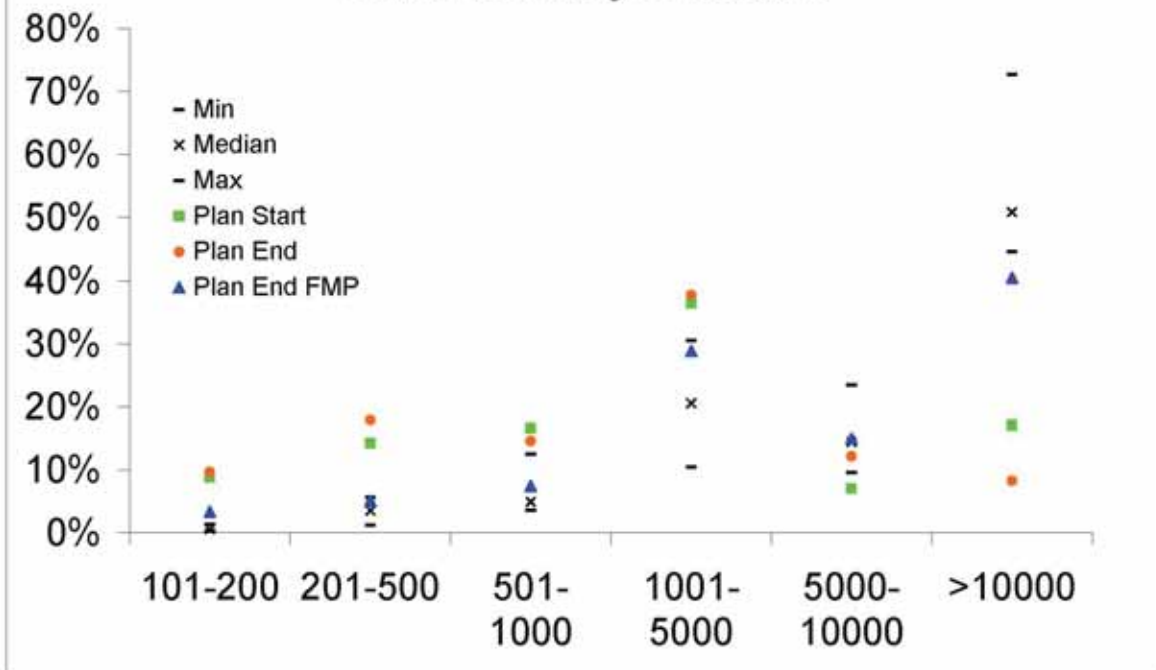
  

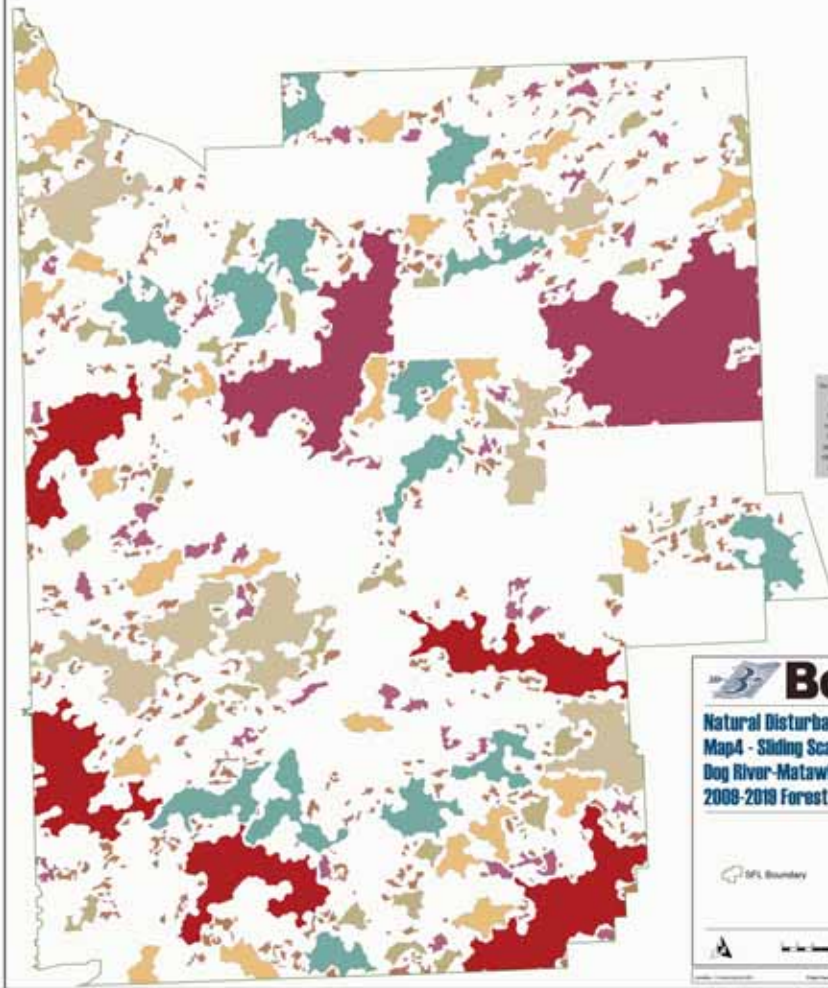
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DO2009 FMP Percent Frequency by Size Class



DO2009 FMP Percent Area by Size Class





Disturbance Level	Color
Very High	Dark Red
High	Red
Medium-High	Orange-Red
Medium	Orange
Medium-Low	Yellow-Orange
Low	Yellow
Low-Medium	Light Green
Very Low	Light Blue

BOWATER

Natural Disturbance Pattern Emulation
 Map4 - Sliding Scale Assessment
 Dog River-Matawin Forest
 2008-2018 Forest Management Plan

- Very High
- High
- Medium-High
- Medium
- Medium-Low
- Low
- Low-Medium
- Very Low

GPS Boundary

Size class (ha)	Number of planned disturbances	Median distance (m)	Minimum average	Actual Average
10-260	271	370	200	550
261-520	36	430	250	737
521-1040	29	910	450	1675
1041-2500	26	790	1,050	1820
2501-5000	14	2910	1,950	3708
5001-10000	7	450	3,800	4558
10001-20000	5	11510	7,550	21430
>20000	2	N/A	10,000	25480

MANAGEMENT UNIT NAME: Dog River-Matawin Forest

PLAN PERIOD: April 1, 2009 - March 31, 2019

FMP-16: Planned Clearcuts (5-year)

Statistics		
	Number	Percent
Number of Planned Clearcuts <= 260	172	72%
Number of Planned Clearcuts > 260	68	28%

Challenges with the NDPEG

- **Historical harvest pattern is already etched across entire landscape of forest making it impossible to change without significant loss of wood supply**
- **Standards are at odds with one another i.e. need to increase number of larger disturbances to approach the natural disturbance benchmark but also need more small cuts to meet 80:20 size ratio requirement.**

NDPEG Bottomline

- **Not a problem to satisfy guideline on a relatively “green field” forest**
- **On a forest with a long history of forest management, the pattern is set and changing it is difficult or impossible without a major loss of wood supply**
- **In these cases (like the Dog) the landscape level NDPEG becomes more of a reporting mechanism than a planning tool**

Forest Management Guidelines for the Provision of Marten Habitat ~ 1996

- **meant to be applied across most of Northern Ontario**
- **Somewhat superceded by the Caribou guidelines in areas where Woodland Caribou are present**
- **Guidelines are designed to provide for habitat for those species which “require” large contiguous patches of conifer dominated forest (species like, pine marten, great grey owl, black backed woodpecker)**

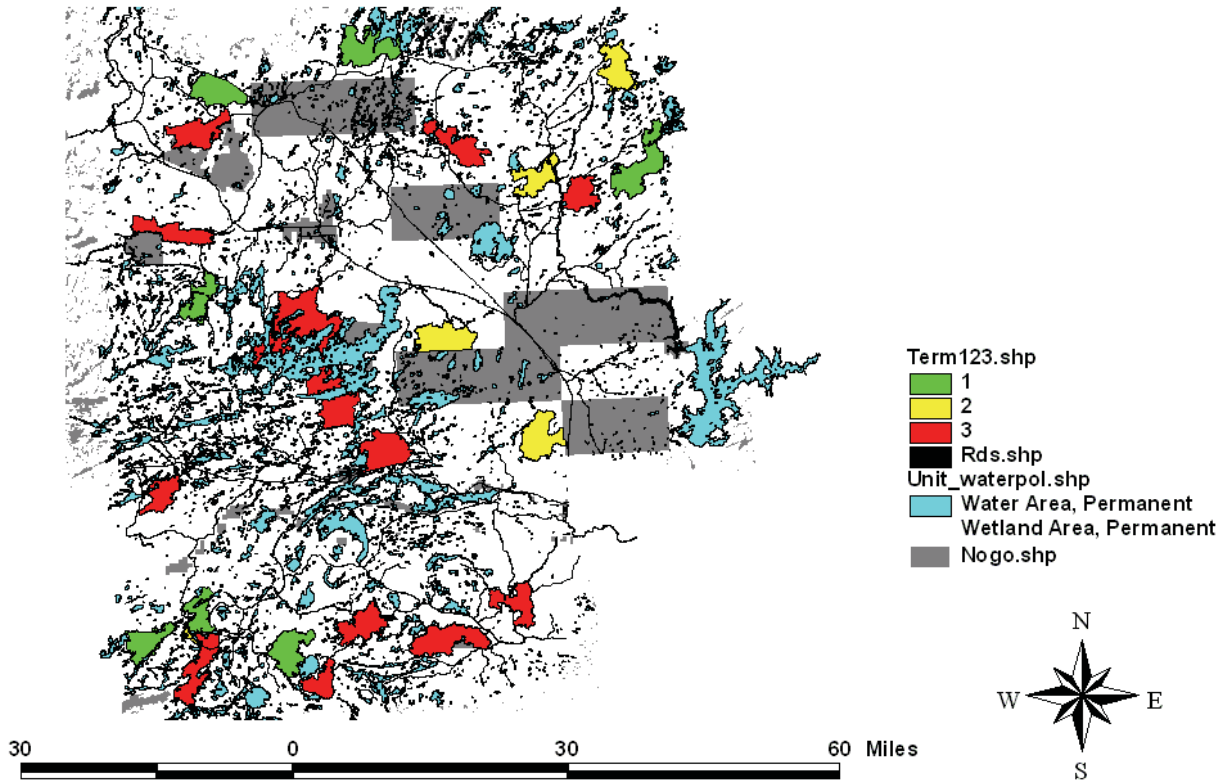
Forest Management Guidelines for the Provision of Marten Habitat

- **Main effect of the guidelines is to require that 10%-20% of the capable habitat on the forest in “suitable” condition**
- **Suitable = Conifer dominated, 50% Crown Closure of Conifer, Min 15 m tall / 80 years, arranged in Core Habitat Areas of 3000 – 5000 hectares in size**
- **Also stand level requirements for retention of snag trees/woody debris**

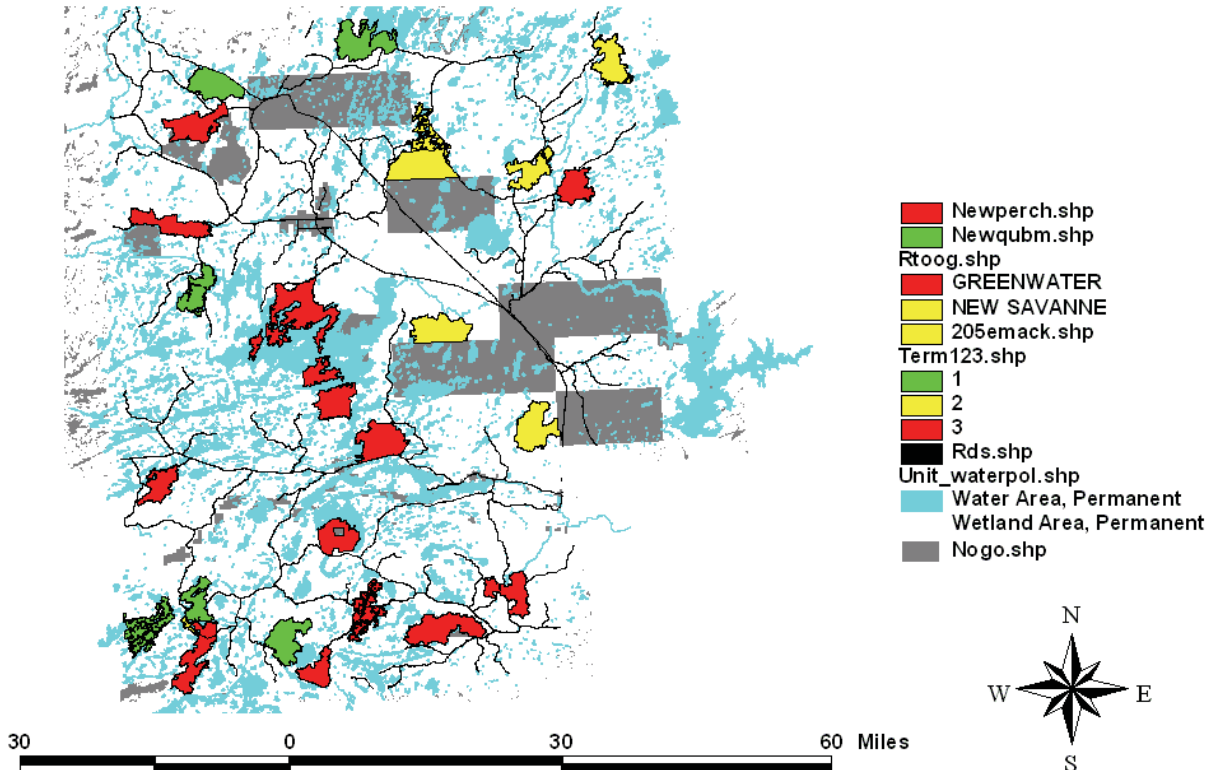
Forest Management Guidelines for the Provision of Marten Habitat

- **Not able to meet the guideline for % suitable habitat on the Dog**
- **Cores improve Marten habitat over time (3.3% – 5.5% - 6.8%) ... But it took 16% of forest to achieve this!**
- **Determination of the final Marten cores based on negotiation and a subjective balancing of objectives; need a cooperative relationship between industry and MNR**

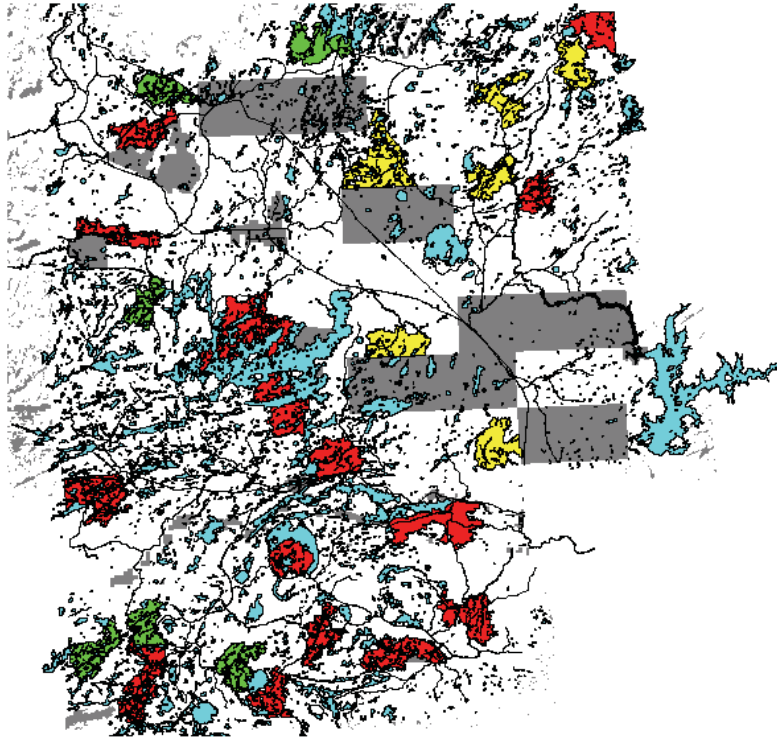
2005 Marten Cores



Mart # 7, Scenario 4



2009 Marten Cores



Simplified_marten.shp

20

40

60

Rds.shp

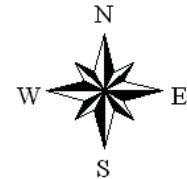
Unit_waterpol.shp

Water Area, Permanent

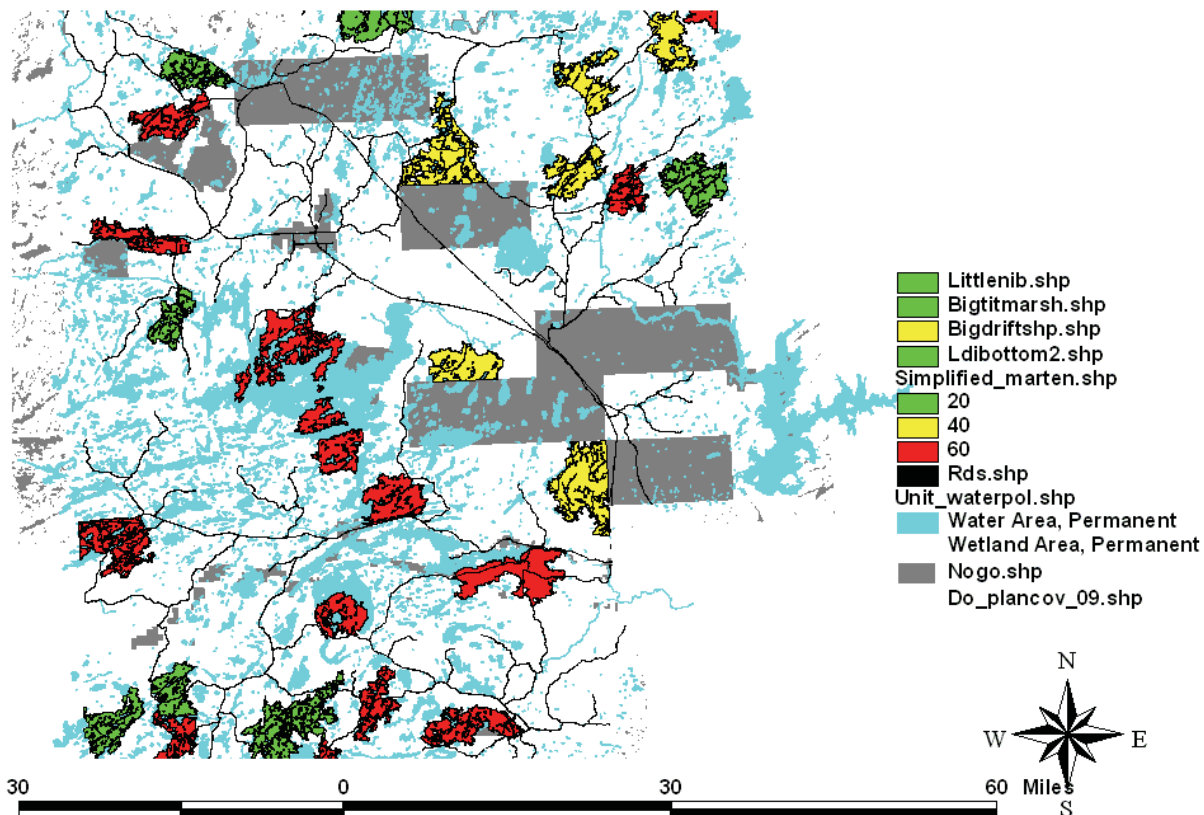
Wetland Area, Permanent

Nogo.shp

30 0 30 60 Miles



Mart # 13, Scenario 8



Forest Management Guidelines for the Provision of Marten Habitat

Bottomline Re: Pine Marten Guidelines

- Once again, like the NDPEG, not a big problem in a green field forest but a huge issue for a forest with long management history**
- Reduced the harvest on the Dog by 15% + and increased wood cost by forcing operations to widely dispersed areas of previously bypassed timber**

Timber Management Guidelines for the Provision of Moose Habitat~1988

“The purpose of these guidelines is to assist resource managers in maintaining or creating through timber management the diversity of age classes and species of vegetation that provide habitat for moose.”

- Net effect of Moose Guidelines was to broadly disperse the harvest into small patches of very best timber leaving patches of poorer timber on a fragmented landscape**

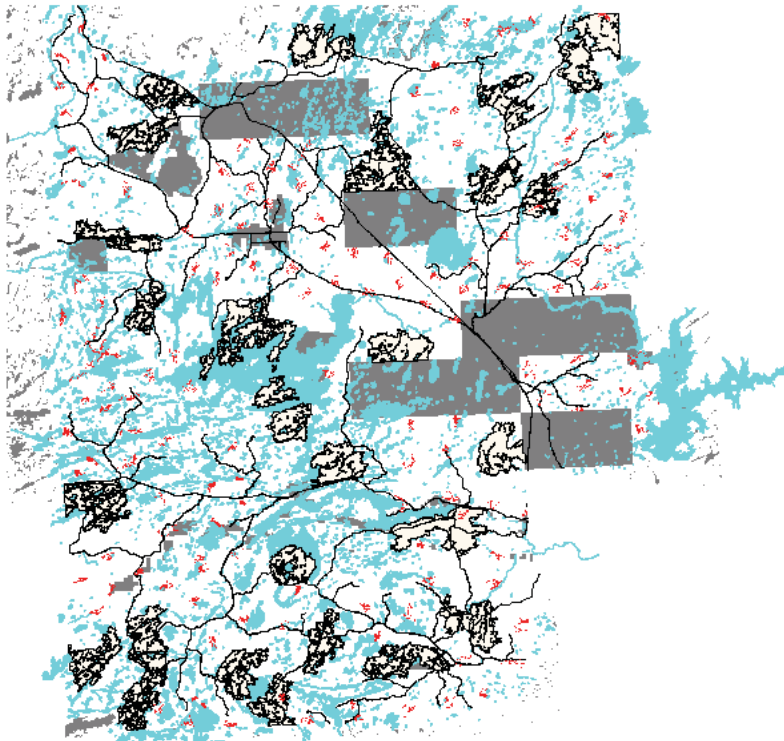
Timber Management Guidelines for the Provision of Moose Habitat ~ 1988

- Average clear cut size = 100 ha
- Design 400 meter cover to cover distance through the use of alternating blocks, corridors, shelter patches
- Return harvest when cut areas are 2 meters
- Specific protection of salt licks, calving areas, aquatic feeding areas, **Late Winter Habitat**

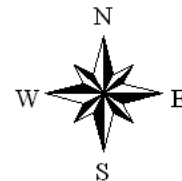
Timber Management Guidelines for the Provision of Moose Habitat ~ 1988

- In many areas of the Dog, mature habitat (esp mature conifer stands) is quite scarce
- Competition between wildlife and timber harvest for these areas
- Concern raised by MNR that *late winter habitat* being eradicated in certain areas
- No specific direction in the moose guidelines so planning team made a do-it-yourself solution; effectiveness unknown
- 100 ha patches of conifer reserved from harvest on a 5 km grid

2009 Habitat Patches



- Moosy.shp
- Simplified_marten.shp
- Rds.shp
- Unit_waterpol.shp
- Water Area, Permanent
- Wetland Area, Permanent
- Nogo.shp



30 0 30 60 Miles

Non-Spatial Assessment Collides with Spatial Policies

- **Wood supply and habitat supply are analyzed using the Strategic Forest Management Model which is an aspatial optimization model**
- **As you near the end of the rotation, the results of aspatial analysis become more and more difficult to “fit” in the real world**
- **Difficult becomes virtually impossible when there are spatial ideals and objectives superimposed on the aspatial “solution”**

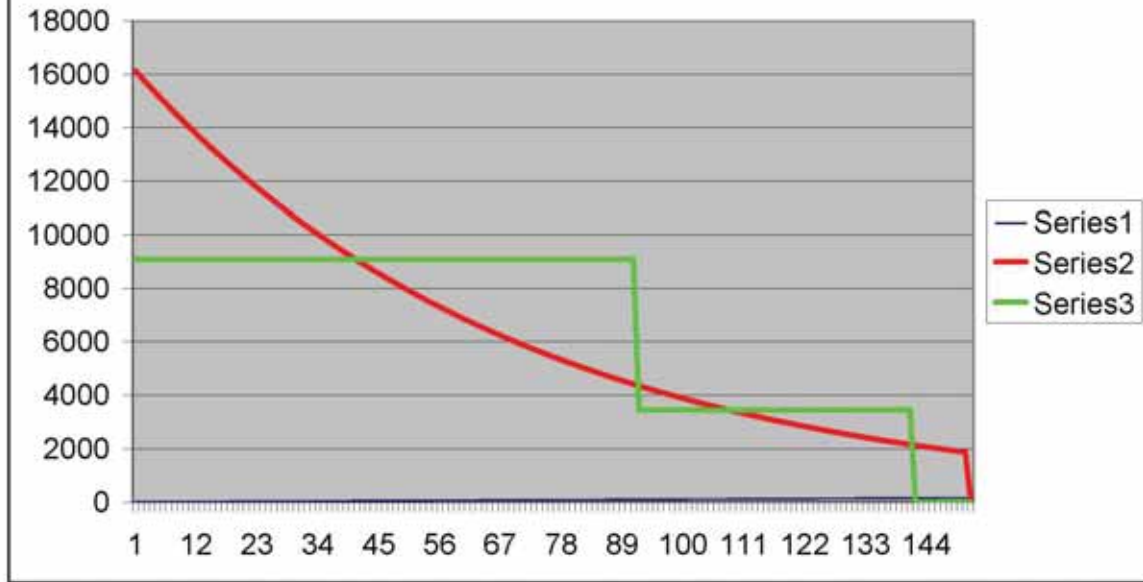
Use of Natural Benchmarks as Targets

- **Two natural benchmarks used in FMP planning:**
 - **Natural Disturbance Template based on historical records from the Forest Fire History Atlas; prepared by MNR and given to planning teams; used for NDPEG analysis**
 - **“Natural Benchmark Run” generated by running base model in SFMM with no harvest and “natural fire cycle”; used for forest structure and habitat supply targets**

Use of Natural Benchmarks as Targets

- **Are the natural benchmarks attainable in the context of a managed forest?**
- **Is the effort and cost required to meet a landscape objective commensurate with the importance of that objective and the certainty behind the target?**

**1,000,000 ha forest, VanWagner Distribution w/ 70
year fire cycle vs Managed Forest w/ 90 year
Rotation and Old Growth Retention**



Final Opinions

- Policies for landscape level design must be flexible enough to account for starting condition of management units
- Ensure landscape design ideals are important to functioning of healthy ecosystem & not just an academic pursuit or “flavor of the week”
- Tradeoffs need to be articulated; what is the upset cost in terms of \$ or wood supply for attaining the ideal?
- Spatial modeling must be integrated into implementation of landscape design
- Benchmarks must be compatible with a managed forest landscape



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QUESTIONS?